

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TENNESSEE
AT KNOXVILLE

GREG ADKISSON, et al.,)	
Plaintiffs,)	
v.)	No. 3:13-CV-505-TAV-HBG
JACOBS ENGINEERING GROUP, INC.,)	
Defendant.)	<i>Lead case consolidated with</i>
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KEVIN THOMPSON, ET AL.,)	
Plaintiffs,)	
v.)	No. 3:13-CV-666-TAV-HBG
JACOBS ENGINEERING GROUP, INC.,)	
Defendant.)	<i>as consolidated with</i>
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JOE CUNNINGHAM, et al.,)	
Plaintiffs,)	
v.)	No. 3:14-CV-20-TAV-HBG
JACOBS ENGINEERING GROUP, INC.,)	
Defendant.)	
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BILL ROSE,)	
Plaintiff,)	
v.)	No. 3:15-CV-17-TAV-HBG
JACOBS ENGINEERING GROUP, INC.,)	
Defendant.)	
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CRAIG WILKINSON, ET AL.,)	
Plaintiffs,)	
v.)	No.: 3:15-CV-274-TAV-HBG
JACOBS ENGINEERING GROUP, INC.,)	
Defendant.)	
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ANGIE SHELTON, as wife and next of kin)	
on behalf of Mike Shelton, et al.,)	
Plaintiffs,)	
v.)	No.: 3:15-CV-420-TAV-HBG
JACOBS ENGINEERING GROUP, INC.,)	
Defendant.)	
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JOHNNY CHURCH,)	
Plaintiff,)	
v.)	No.: 3:15-CV-460-TAV-HBG
JACOBS ENGINEERING GROUP, INC.,)	
Defendant.)	

DONALD R. VANGUILDER, JR.,)	
Plaintiff,)	
v.)	No. 3:15-CV-462-TAV-HBG
JACOBS ENGINEERING GROUP, INC.,)	
Defendant.)	
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JUDY IVENS, as sister and next of kin,)	
on behalf of JEAN NANCE, deceased,)	
Plaintiff,)	
v.)	
JACOBS ENGINEERING GROUP, INC.,)	No. 3:16-CV-635-TAV-HBG
Defendant.)	
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PAUL RANDY FARROW,)	
Plaintiff,)	
v.)	
JACOBS ENGINEERING GROUP, INC.,)	No. 3:16-CV-636-TAV-HBG
Defendant.)	
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**MEMORANDUM OF LAW IN SUPPORT OF
JACOBS ENGINEERING GROUP, INC.'S RENEWED MOTION
FOR PARTIAL SUMMARY JUDGMENT ON GENERAL CAUSATION**

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Date: March 20, 2018

Jacobs submits this Memorandum of Law in Support of its Renewed Motion for Partial Summary Judgment on General Causation.¹

INTRODUCTION

In Phase I of this toxic tort case, Plaintiffs must prove general causation. Specifically, Plaintiffs must prove, through the testimony of qualified expert witnesses, a “causation link” between their exposure to fly ash at the Kingston Fossil Plant and the specific types of health problems they allege. In order to meet that burden, Plaintiffs must prove: (1) the minimum levels of exposure to fly ash or particular constituents of fly ash necessary to cause the types of illnesses they allege; (2) the doses or levels of the constituents to which Plaintiffs were potentially exposed while working at Kingston, *i.e.*, actual exposure to potentially harmful levels of these constituents; and (3) that it is biologically plausible that Plaintiffs were exposed to such harmful levels. *See In re TVA Ash Spill Litig.*, 805 F. Supp. 2d. 468, 482 (E.D. Tenn. 2011).

Plaintiffs disclosed nine expert witnesses on May 1, 2017. It was readily apparent from the reports that the experts’ opinions on general causation were inadmissible under *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993), and that Plaintiffs had not complied with Fed. R. Civ. P. 26. The Court ordered Plaintiffs to supplement the disclosures, but they failed to comply with that Order. [See Doc. 162 (“the June 12 Order”).]² Jacobs disclosed its experts on August 18, 2017, and filed its original Motion for Partial Summary Judgment on General

¹ In its Renewed Motion for Partial Summary Judgment on General Causation and to Exclude Expert Opinions on General Causation, Jacobs argued, in part, that Plaintiffs’ expert proof should be excluded. [Doc. 237.] On March 13, 2018, the Court directed Jacobs to submit a separate motion addressing those issues. [Doc. 239.] Jacobs has now filed a separate motion pursuant to that Order, and has not addressed those arguments in this Memorandum. [Doc. 240.]

² This Memorandum refers to the docket entries in *Adkisson v. Jacobs Engineering Group Inc.*, Case No. 3:13-CV-505-TAV-HBG.

Causation on October 6, 2017. [Doc. 191.] With their Response to that motion, Plaintiffs disclosed supplemental reports for three of their experts; however, those reports did not bridge the substantial gaps in Plaintiffs' proof on general causation. The Court recently denied Plaintiffs' request to disclose additional experts. [Doc. 235.]

Even assuming the admissibility of their expert proof,³ Plaintiffs cannot prove general causation because their experts have not even attempted to address the basic issues necessary to establish a "causation link" between Plaintiffs' alleged exposure and the types of health problems they allege. Plaintiffs' experts have not established the minimum levels at which any constituent of fly ash can cause any of Plaintiffs' illnesses. They do not even attempt to quantify the doses or levels of any Plaintiff's exposure to any constituent of fly ash. They have not established that potentially toxic levels of any constituent were present in the areas where Plaintiffs worked. They have not attempted to prove that it is biologically plausible that Plaintiffs were exposed to potentially harmful levels of such substances. For these reasons and others, which are discussed below, summary judgment should be granted in favor of Jacobs as to general causation.

BACKGROUND AND RELEVANT PROCEDURAL HISTORY

Plaintiffs are fifty-two individuals who worked on TVA's fly ash clean-up, removal and recovery project at the Kingston Fossil Plant following the December 22, 2008 ash spill, along with some of their spouses and next of kin. [See Doc. 59, Am. Compl.] Plaintiffs assert various claims against Jacobs, the construction manager hired by TVA in 2009 to provide project planning, management, and oversight to assist TVA in the overall recovery and remediation of the site. [See Doc. 11-1 Ex. A at p. 2.] Plaintiffs filed their original complaints between August 2013 and

³ As further set forth in Jacobs' Motion to Exclude Opinions of Plaintiffs' on General Causation [Doc. 240.], Plaintiffs' experts should be excluded under *Daubert* and Rule 702, and because expert reports that have been provided do not comply with Rule 26 or the June 12 Order.

January 2014. These cases were consolidated on July 10, 2014. [Doc. 35.]

Plaintiffs claim that while working at the site, as a result of Jacobs' conduct: (1) they were "exposed to arsenic, . . . mercury, barium, strontium, thallium, lead, silica-quartz, asbestos, radioactive material, selenium, aluminum oxide, iron oxide, calcium oxide, boron and other hazardous substances associated with the toxic fly ash[;]" and (2) that as a result of that exposure they "suffered personal injuries [including] pulmonary injuries, [] leukemia, sinus injuries, skin problems, [and] other personal injuries . . ." [Doc. 59, ¶¶ 48, 89.] Plaintiffs assert several causes of action against Jacobs: (1) negligence, (2) negligence per se, (3) reckless failure to communicate and warn, (4) reckless/intentional infliction of emotional distress, (5) fraud, (6) misrepresentation/fraudulent concealment, (7) strict liability, and (8) assault/battery. [*See id.*, at 18-33.]

On January 30, 2017, the Court ordered that the trial in these cases would be bifurcated, and ordered that Phase I would "involve issues and evidence relating to: (1) whether defendant owed plaintiffs a legal duty; (2) whether defendant breached that duty; and (3) whether defendant's breach was capable of causing plaintiffs' alleged injuries." [Doc. 136, at 7.] The Court noted that while the Parties agreed that there was a general causation element in these cases, they appeared to disagree regarding what Plaintiffs would need to prove in order to establish general causation. [*Id.*] The Court expressly declined to address the issue at that time. [*Id.* at 5, n. 2.]

The Phase I trial was originally scheduled to begin on January 29, 2018. [Doc. 138.] The Court set May 1, 2017 as the deadline for Plaintiffs to identify and disclose experts pursuant to Fed. R. Civ. P. 26(a)(2). [*Id.*] On that date, Plaintiffs disclosed nine expert witnesses, but produced reports for only six of them: Dr. William J. Rea, Dr. John W. Ellis, Roy D. Hudgens, Collen Landaiche, Bobby Williams, and Frances A. Draughon, Ph.D. Plaintiffs did not produce expert reports for Dr. Paul Terry, Dr. Rajiv Dhand or Dr. John Hill. [*See Doc. 162.*]

On May 18, 2017, the Court held a discovery conference, during which Jacobs averred that the expert reports of Dr. Rea and Dr. Ellis were insufficient and that written reports from Dr. Terry and Dr. Dhand were required. [See Doc. 162, at 2-3, 5-14.] The Court ordered Plaintiffs to supplement the reports of Dr. Rea and Dr. Ellis on or before July 14, 2017. [Id. at 15.] The Court ordered that “[t]he reports must include an explained basis for the conclusions reach[ed], the facts or data considered, including any test results and findings from ‘[r]eliable physical and toxicological examinations,’ and exhibits that will be used.” [Id.] The Court also ordered that “[t]o the extent that Dr. Terry and Dr. Dhand will be called as witnesses at trial, a written report must be provided” [Id.] Jacobs’ expert deadline was extended to August 18, 2017. [Id.]

On July 14, 2017, notwithstanding the direction and warnings given by the Court, Plaintiffs supplemented their disclosures to provide some but not all of the information addressed in the June 12 Order. Instead, Plaintiffs produced: (a) progress notes, hair testing results, antigen/intradermal testing results, urine test results, and a report from Dr. Rea indicating he reached a diagnosis of “toxic encephalopathy,” based upon his encounters with just three Plaintiffs; (b) a two page signed statement from Dr. Terry that did little more than reiterate the assertions in his original disclosure; and; (c) a report from a previously unidentified individual, Dr. Cole, concerning property values. Plaintiffs did not provide a report for Dr. Dhand, and withdrew Dr. Ellis as an expert.

Jacobs disclosed its experts on August 18, 2017. Plaintiffs did not serve any rebuttal expert reports. Jacobs filed its original Motion for Partial Summary Judgment on General Causation on October 6. [Doc. 191, 192.] The expert disclosure and fact discovery deadlines expired on October 13. [See Doc. 57, 86, 122, 138, 162.] Plaintiffs filed their Response to Jacobs’ Motion on October 27. [Doc. 205.] Attached to that Response were supplemental disclosures for Dr. Terry and Mr. Williams, and a declaration from Mr. Hudgens. [Doc. 205-06, 205-07, 205-08.]

Shortly after Jacobs filed its prior summary judgment motion, Plaintiffs also moved to continue the trial, and requested that the Court reopen all discovery, including expert discovery. [See Doc. 200.] The Court granted that motion, in part, on November 9, 2017, and ordered that the trial would be continued to April 16, 2018. [Doc. 215.] In its Order, the Court denied, without prejudice, Jacobs' Motion for Partial Summary Judgment on General Causation. [*Id.*] The Court did not, however, set any new deadlines for fact discovery or the disclosure of experts. [See Doc. 215, 230, at 5.] On November 29, 2017, the Court again reset the trial date, to September 17, 2018, after Plaintiffs informed the Court that there had been a fire at their office.⁴ [Doc. 220.]

Plaintiffs subsequently indicated that they wished to disclose additional experts, even though their expert disclosure deadline had already expired. At the Court's direction, the parties submitted briefs addressing that request. [See Doc. 223, 230, 233, 234.] In their Report, Plaintiffs identified three entirely new experts who purportedly intended to introduce both a new epidemiological study and a new theory as to general causation.⁵ The Court denied Plaintiffs' request to introduce those new experts and new opinions. [Doc. 235.] With Plaintiffs' expert proof now set, Jacobs now renews its motion for partial summary judgment on general causation.

RELEVANT UNDISPUTED MATERIAL FACTS

I. OPINIONS OF PLAINTIFFS' EXPERTS

A. Dr. Paul Terry

Plaintiffs produced a two-page report for Dr. Terry on July 14, 2017 [Doc. 0237-01, Ex. A], and attached his supplemental report to their Response to Jacobs' prior summary judgment

⁴ The Court also again reset the dispositive motion deadline. [See *id.* at 3]

⁵ Conspicuously absent from these new experts as well was any mention of levels of exposure (dose) or the mechanism by which such exposure might have caused Plaintiffs' alleged injuries.

motion. [Doc. 205-06.] In his original report, Dr. Terry stated that he would testify as to statistical data, odds ratios, and “an unusually high occurrence of diseases found in the remediation workers that include leukemia, skin problems, lung cancer, other cancers, low testosterone, sinus, heart, pulmonary, breathing problems, neurological, and intestinal problems, including an environmental association of other health conditions and the statistical odds of these conditions caused, aggravated or contributed by fly ash exposure.” [Doc. 0237-01, at 1.] He stated that he had compared his data with the “population as a whole or a control group of similar workers who were not exposed to fly ash.” *Id.* That report did not describe the type of study conducted, or his methodology. [*See id.*, at 1-2.]

In his supplemental report, Dr. Terry provides limited additional information about a planned but incomplete study. [Doc. 205-06, at 1.] He claims that he will “estimate the association between exposure and disease” using a “[r]etrospective observational/cohort study.” [*Id.* at 1-2.] Participants were selected “based on exposure to fugitive dust at the KIF facility,” and “detailed . . . questionnaires” were administered to each. [*Id.*] He does not describe how the control group was selected. [*Id.*] Dr. Terry states, without further explanation, that “[a]t this point in time, the data suggests that the alleged injuries of the plaintiffs being caused by extended exposure to fly ash is biologically plausible because exposed workers have higher occurrences of several diseases and health conditions compared with the general population and our control group.” [*Id.*]

Dr. Terry has not produced any of the data pertaining to his study, or any of the questionnaires that were purportedly filled out by the individuals involved. He has not identified any of the health conditions that he claims are more commonly found in his test group. It appears Dr. Terry has not conducted a dose-response analysis for any Plaintiff, and has not personally

examined any Plaintiff. [See *id.*; see also Doc. 237-08, Ex. H, Hoel Dec., Report, at 4; 8; and 9.] He has not explained how he reached his conclusion regarding biological plausibility. [See *id.*]

B. Roy D. Hudgens

Mr. Hudgens states that he has a master's degree in chemistry. [Doc. 0237-02, **Ex. B**, Report.] The only opinion in his report addressing general causation is his opinion that "repeated exposure causes serious health problems in long weekly shifts." [*Id.* at 1.] In his Declaration, he provides additional opinions criticizing Jacobs' efforts to monitor workers' exposure to fly ash at Kingston. [Doc. 205-07, at 1-3.] Mr. Hudgens also states that he had fly ash "from the area known as the ball field at KIF tested by means of x-ray fluorescence, electron microscope/SEM imaging, and laser particle size analyzer analyzed for the elemental composition as well as particulate size." [*Id.* at 1] He states that "results from said testing were that approximately 10% were less than 3 microns in size making some of the ash very inert particulate matter." [*Id.*] He states, purportedly based upon his "training and years of experience[, that] it is dangerous to inhale particles of this size because they stay in your lungs and body." [*Id.*] He opines that "these particles even when not toxic are known in the scientific community to cause inflammation, lung problems, negative immune response and disease." [*Id.* at 1-2.] He states that "these particles presented an excessive danger to human health because based upon the MSD data and Jacobs [sic] reference to the hazardous toxins contained in the ash along with its radioactivity created a situation where the hazardous nature of the particulate was enhanced by its own constituents." [*Id.* at 2.]

Mr. Hudgens states that he will, at some point, identify "authoritative scientific literature" and "data results" that support his opinions, but he has not yet done so. [*Id.*] He has not produced any documents relating to his purported study of the fly ash from Kingston, including any chain

of custody or any data relating to the study.⁶ He has not identified any methodology he used. [Id.] He has not attempted to quantify any particular individual's level of exposure to any substance. [Id.] He does not offer any explanation as to biological plausibility. [Id.] He does not suggest that he has any education or experience relevant to the diagnosis of any health condition. [Id.]

C. **Bobby Williams**

Mr. Williams states that he has a degree in nuclear engineering. [Doc. 237-03, Ex. C, Report, at 1.] In his original report, he purports to opine on eleven general topics including, among others: (1) hazardous evaluation of chemicals, metals, elements, particulates, and toxins; (2) heavy metal combination toxicity; and (3) hazardous constituent containment. [Id. at 3.] He states that he will testify that the working environment at Kingston was hazardous to human health. [Id.] In his supplemental disclosure, Mr. Williams adds "radioactivity" to the prior list of general topics. [Doc. 205-08, at 1.] Mr. Williams further states, based upon his understanding of the environment and the work performed at Kingston, that there was "a situation where more nondischargeable PM 2.5 particulate matter is stored in the lungs." [Id. at 2.] He offers criticisms of alleged failures by Jacobs to properly assess and monitor the risks associated with exposure, as well as failures to properly educate workers regarding the risks of such exposures. [Id.] Mr. Williams concludes that the air monitoring data for the site is unreliable. [Id. at 2.] Mr. Williams also concludes, based entirely upon his review of "pictures of the site with visible foggy airborne fly ash," that "fly ash on those instances was beyond PEL's [sic]." [Id. at 1, 3.]

Mr. Williams does not attempt to quantify Plaintiffs' levels of exposure, and does not address biological plausibility. [See id.] Mr. Williams has not described the reasoning behind any

⁶ Jacobs has repeatedly requested the opportunity to inspect the fly ash that Mr. Hudgens purportedly examined, but has not yet been given the opportunity to do so.

opinion. [See *id.*] He purports to base his opinions on his education, experience, and materials provided in discovery, but has not specifically identified any of the facts, data, research, testing or documents upon which he relies. [See *id.*; Doc. 237-03, at 1.]

D. Dr. William J. Rea

Dr. Rea states that he is a physician. [Doc. 237-04, **Ex. D**, Report (original report), at 1-4.] He purports to have examined three individuals who worked at the Kingston site. [*Id.* at 1.] He states that he “will opine on the link between fly ash exposure and the correlation and effects of MDS.” [*Id.* at 1.] He states that he “will testify that fly ash constituents are toxic and, in certain instances, carcinogenic.” [*Id.* at 2.] He states that he will opine about personal protective equipment. [*Id.*] His supplemental disclosure references a diagnosis of “toxic encephalopathy,” even though no Plaintiff alleges such a diagnosis or condition. [See generally Doc. 59.]

Dr. Rea has not produced any data or other information demonstrating the nature or extent of Plaintiffs’ actual exposure to the potentially toxic constituents in fly ash. [See Doc. 237-04.] He does not explain how the constituents become unbound or dissolved from the ash, or how those constituents could be absorbed by the body. [See *id.*] He provides no evaluation of dose or a dose-response relationship for any of the Plaintiffs, and has not conducted any testing relevant to that issue. [See *id.*] He does not suggest that he has conducted a differential diagnosis of any Plaintiff. [See *id.*] He has not specifically identified any literature that addresses Plaintiffs’ injuries. [See *id.*] He has not yet addressed the purported link between fly ash exposure and the effects of MDS. [See *id.*] He has not disclosed any methodology that he utilized in reaching his opinions. [See *id.*]

E. Frances A. Draughon, Ph.D.

Dr. Draughon, who has a degree in Food Science, states that she will opine as to the constituents found in fly ash. [Doc. 237-05, **Ex. E**, Report.] She states that she will testify that

“respirable particles should not be inhaled or ingested.” [Id. at 1.] She also states that fly ash can cause cancer and “the same types of health problems” alleged in this case. [Id.] Dr. Draughon has not disclosed the reasoning behind any of her opinions. [See *id.* at 1-2.] She has not identified the facts, data, testing, or literature she considered, or any methodology she used. [See *id.*]

F. Colleen Landaiche

Ms. Landaiche, holds a degree in aerospace engineering. [Doc. 237-06, **Ex. F**, Report.]

None of her opinions appear to relate to general causation. [See generally *id.*]

II. RELEVANT OPINIONS OF JACOBS’ EXPERTS

Jacobs disclosed five (5) expert reports. On the issue of general causation, Jacobs’ disclosed the reports of Scott D. Phillips, MD, FACP, FACMT, FAACT and David G. Hoel, Ph.D.

A. Scott D. Phillips, MD, FACP, FACMT, FAACT

Dr. Phillips is board certified in internal medicine and medical toxicology, and is licensed in Colorado and Washington. [See Doc. 237-07, **Ex. G**, Dec., Report, at 2.] He opines that in order to offer a “scientifically defensible conclusion,” Plaintiffs must follow a valid procedure:

Appraisal of adverse toxicological risk probability requires knowledge of (1) the chemicals that posed intrinsic hazard(s), and (2) the dose or concentration to which an individual is exposed, and (3) illness caused by absorbed dose that is demonstrated in the medical literature. Moreover, for all individuals, other reasonable causes of claimed health effect(s) must be ruled out before chemical causation can definitively be ruled in.

[*Id.* at 8.] Dr. Phillips explains that the process of ruling out other reasonable causes of claimed injuries before ruling in causation by a particular chemical is known as “differential diagnosis.”

[*Id.* at 14.] “[A]lternative causes for a diagnosis must [also] be considered.” [*Id.*] Then, the Bradford Hill criteria must be used to evaluate the data. [*Id.* at 16-17.]⁷

⁷ The Bradford-Hill Criteria are: (1) strength of association; (2) consistency of the association; (3) specificity of association; (4) temporality of the association; (5) biological gradient observed; (6) biologic plausibility; (7) coherence; (8) experimental or intervention effect; and (9) analogy. *Id.*

B. David G. Hoel, Ph.D.

Dr. Hoel received a Ph.D. from the University of North Carolina, and completed a post-doctoral fellowship in preventive medicine at Stanford University. [See Doc. 237-08, **Ex. H**, Dec., Report, at 1.] He opines that there are several types of valid epidemiological studies that can be used to analyze causation. [*Id.* at 4.] In a cohort study, “a defined group of individuals is followed over time and their health outcomes are analyzed.” [*Id.* at 4.] “The exposures of interest, as well as known or other possible risk factors are determined at the beginning and throughout the study.” [*Id.*] There are also case control studies, in which “cases of the disease are identified in the population and a group of non-diseased individuals are chosen which closely match the cases by age and gender.” [*Id.*] In addition, there are ecological studies, in which “[r]ates of disease, as well as exposures are calculated at the group or population level. These prevalence levels are compared among different geographic areas or different time periods.” [*Id.*] An epidemiological study is used to “compare the incidence of disease among various groups of individuals . . . [and] provide[] knowledge about both what the risk factors for a disease are, and quantitatively how great a risk the risk factors are.” [*Id.* at 3.] Dr. Hoel also opines that in considering causation, generally, the Bradford Hill criteria are used to evaluate the data and determine if a “particular exposure is truly a risk factor or causative agent for the disease” [*Id.* at 4.]

RELEVANT LEGAL STANDARDS

I. SUMMARY JUDGMENT STANDARD

Federal Rule of Civil Procedure 56(c) mandates the entry of summary judgment “against a party who fails to make a showing sufficient to establish the existence of an element essential to that party’s case, and on which that party will bear the burden of proof at trial.” *Celotex Corp. v. Catrett*, 477 U.S. 317, 322 (1986). The movant’s burden is satisfied by showing there is an absence of evidence to support any essential element of the non-movant’s claim. *Id.* at 324. “On summary

judgment, under the doctrine of *Celotex* . . . and *Anderson v. Liberty Lobby, Inc.* 477 U.S. 242 (1986), the expert evidence must show the elements required for a finding of causation.” *Turpin v. Merrell Dow Pharm., Inc.*, 959 F.2d 1349, 1359 (6th Cir. 1992). A trial court may reject as insufficient “speculative medical evidence offered . . . to establish factual causation of the Plaintiff’s alleged injuries.” *Thomas v. Am. Cyanamid Co.*, 7 F.3d 235, at *1 (6th Cir. 1993) (unpub.). A ruling on the sufficiency of expert evidence is consistent with *Daubert*, which focuses on the admissibility of expert evidence. *Id.* (citing *Turpin*, 959 F.2d at 1349).

II. PLAINTIFFS’ BURDEN OF PROOF AS TO GENERAL CAUSATION

In order to prove general causation, Plaintiffs must establish, through expert testimony:

- (1) the minimum levels of exposure to fly ash or particular constituents of fly ash necessary to cause the illnesses Plaintiffs allege;**
- (2) the doses or levels of these constituents to which Plaintiffs were exposed while working at Kingston, i.e., actual exposure to potentially harmful levels of these constituents; and**
- (3) that it is biologically plausible that Plaintiffs were exposed to harmful levels of the constituents of fly ash at issue through inhalation, contact, or some other means of exposure.**

Underlying all of Plaintiffs’ claims in this case are their contentions that Jacobs caused them to be exposed to potentially harmful constituents of fly ash, and that such exposure caused them to develop certain injuries. The parties agree that Plaintiffs are required to prove general causation as to these contentions, and that expert proof will be required to meet that burden.⁸ The parties disagree as to what Plaintiffs are required to prove in order to establish general causation.

⁸ It is well-established that in a toxic tort case, issues of general causation, specific causation and injury are not within the knowledge of the average juror, and must be established through expert testimony. See *Nelson v. Tenn. Gas Pipeline Co.*, 243 F.3d 244, 247 (W.D. Tenn. 1998) (affirming district court’s grant of summary judgment upon exclusion of plaintiffs’ expert testimony in long-term exposure PCB case); *Downs v. Perstorp Components, Inc.*, 26 F. Appx. 472, 477 (6th Cir.

This Court thoroughly and accurately described plaintiffs' burden of proof in establishing causation in a toxic tort case in *In re TVA Ash Spill Litig.*, 805 F. Supp. 2d. at 482, a case that also involved allegations relating to exposure to fly ash at Kingston. TVA moved for summary judgment as to causation alleging, in part, that the plaintiffs had failed to show that exposure to coal ash had caused their alleged injuries. *Id.* As in this case, it was undisputed that "metals and chemicals bound up in coal ash could be toxic to humans depending on the level of exposure." *Id.* at 480 (emphasis added). The Court granted summary judgment as to the plaintiffs' claims. *Id.*

The Court explained that "[u]nder Tennessee law, in order to establish proximate cause for claims of . . . bodily injury due to environmental exposure to toxic chemicals or to diseases . . . , 'evidence of a medically recognized channel of transmission' is required." *Id.* at 479 (quoting *Bain v. Wells*, 936 S.W.2d 618, 624–25 (Tenn. 1997)). The Court held that plaintiffs "alleging . . . injuries resulting from toxic chemicals" must show "actual—not potential—exposure" to potentially toxic constituents in a level sufficient to cause injury or distress:

Plaintiffs have not established a genuine issue of fact that their exposure to the coal or fly ash in the environment equates to an exposure to the potentially toxic constituents bound up in the ash. Plaintiffs have not put forth evidence of a causation link between exposure to the ash and a specific personal injury, respiratory symptom, or emotional distress. Although plaintiffs argue that exposure to the toxic constituents in the ash exists by virtue of the presence of ash in the environment, the mere existence of a toxin in the environment is insufficient to establish causation without proof that the individual was actually exposed to the toxin and at a level sufficient to cause injury or stress. Similar to the plaintiffs in *Sterling* [v. *Velsicol Chem. Corp.*, 855 F.2d 1188, 1199 (6th Cir. 1988)] and *Robinson* [v. *Union Carbide Corp.*, 805 F. Supp. 514, 515 (E.D. Tenn.1991)], plaintiffs have not shown actual exposure to the potentially toxic constituents in the ash or brought forth evidence that a plaintiff ingested or used the ash at the requisite level to have resulted in a personal injury or emotional distress. Moreover, plaintiffs have not set forth a minimum level of exposure for personal injury or emotional distress, let alone that a certain plaintiff ingested or used enough of the ash to make a claim viable. Furthermore, plaintiffs have not provided toxicological

2002) (holding that plaintiff alleging neurological injuries suffered after exposure to toxic chemical required expert testimony to establish causation).

evidence or health reports and screenings that refute the evidence and reports submitted by TVA. Rather, plaintiffs have only provided evidence that the constituents in coal and fly ash may, at certain levels, cause injury and stress. Accordingly, given what Tennessee law requires . . . [and] plaintiffs' lack of evidence showing actual exposure to the potentially toxic constituents (and not just exposure to the ash itself) in a level sufficient to cause personal injury or emotional distress, and the lack of evidence showing actual ingestion or use, . . . summary judgment as to [the plaintiffs'] claims are hereby GRANTED.

Id. at 482 (emphasis added).

That opinion is consistent with the decisions of other courts that have considered the issue of general causation under similar circumstances. In *Sterling*, which is controlling authority, the court explained that in deciding general causation, the question is “whether the combination of the chemical contaminants and the plaintiffs’ exposure to them had the capacity to cause the harm alleged.” *Sterling*, 855 F.2d at 1200. Similarly, in *Knight v. Kirby Inland Marine Inc.*, 482 F.3d 347, 351 (5th Cir. 2007), the Fifth Circuit held that “[g]eneral causation is whether a substance is capable of causing a particular injury or condition in the general population” *Knight*, 482 F.3d at 352 (citation omitted). The court explained that “the fundamental question underlying . . . [general causation] is whether the chemicals [the plaintiffs] were exposed to and the type of exposures they experienced cause [the illnesses alleged]” *Id.* (emphasis added); *see also, e.g., In Re Hanford Nuclear Reservation Lit.*, 292 F.3d 1124, 1133 (9th Cir. 2002) (holding similarly); *Bonner v. ISP Techs., Inc.*, 259 F.3d 924, 928 (8th Cir. 2001) (citation omitted) (“[A] plaintiff must show . . . that the alleged toxin is capable of causing injuries like that suffered by the plaintiff in human beings subjected to the same level of exposure”).

Applying these standards, it is clear that there are, at a minimum, three elements that the Plaintiffs must address in order to establish general causation.⁹

⁹ Contrary to these authorities, Plaintiffs contend that this Court can simply assume both that levels of potentially toxic substances sufficient to cause Plaintiffs’ health issues existed at Kingston

A. Plaintiffs must prove the levels at which the constituents of fly ash at issue can cause the types of health problems alleged.

Plaintiffs must first establish the levels or doses at which the potentially harmful substances at issue can cause the types of illnesses alleged. *See In re TVA Ash Spill Litig.*, 805 F. Supp. 2d. at 482 (“plaintiffs have not set forth a minimum level of exposure for personal injury”); *Seaman v. Seacor Marine L.L.C.*, 326 F. App’x 721, 727 (5th Cir. 2009) (“Without any facts that would establish the allegedly harmful level of exposure . . . [the expert’s opinion] does not establish general causation.”); *Mitchell v. Gencorp, Inc.*, 165 F.3d 778, 781 (10th Cir. 1999) (“[A] plaintiff must demonstrate the levels of exposure that are hazardous to human beings generally. . . .”); [Doc. 237-09, Ex. I, Fed. Jud. Center, *Ref. Manual on Scientific Evid.* 507 (3d. ed. 2011)¹⁰ (expert’s opinion on general causation should address whether the dose is sufficient to cause the disease); Doc. 237-07, Ex. G, Phillips Dec., Report, at 7 (proof of exposure to fly ash, alone, is not sufficient to prove causation).]¹¹

simply because such substances can be found in fly ash, and that it is biologically plausible that Plaintiffs were exposed to such levels through inhalation or contact. For example, Plaintiffs have claimed that the statement in the Material Safety Data Sheet for fly ash (which is reflected in the Site Wide Safety and Health Plan (“SWSHP”) for the Kingston site) that certain constituents of fly ash are potentially harmful to humans is, alone, proof that fly ash “probably caused the harm alleged. . . .” [Doc. 205, at 9-10.] That assertion, like Plaintiffs’ experts’ opinions, ignores the issue of dosage and assumes that any amount of any of the substances at issue is capable of causing the injuries alleged. (Notably, that assertion also ignores the fact that the SWSHP also addresses the safe levels of exposure to such constituents, *i.e.*, the levels at which exposure is not dangerous.) Such contentions are not supported by any legal authority and are contrary to accepted science.

¹⁰ The *Reference Manual* has been routinely cited by Courts within the Sixth Circuit, including this Court. *See, e.g., Wynacht v. Beckman Instruments, Inc.*, 113 F. Supp. 2d 1205, 1210 (E.D. Tenn. 2000) (citing the *Reference Manual* in explaining that “toxicologists and physicians specializing in occupational medicine undertake a series of inquiries in determining whether a chemical exposure is capable of causing a disease or other impairment.”).

¹¹ *See also Wynacht*, 113 F. Supp. 2d at 1210 (“Key to these investigations is identifying the level of exposure and how it interacts with various organs or body systems (‘dose-response’), both in terms of how the chemical is initially distributed through the organism as well as how it ultimately

Plaintiffs must present such proof because it is well-established that the potentially toxic or otherwise harmful constituents of fly ash, including silica dust and trace amounts of heavy metals, must reach certain concentrations or doses before they can harm humans. Notably, the Federal Government and other entities have adopted standards addressing the levels at which it is safe for humans to be in and around these substances. The Occupational Safety and Health Administration (“OSHA”) has adopted standards regarding safe levels of exposure for all of the constituents of fly ash. There are similar standards promulgated by the National Institute for Occupational Safety and Health (“NIOSH”), the American Conference of Governmental Industrial Hygienists (“ACGIH”), and others. These entities have also adopted standards for respirable dust, *i.e.*, fine particles of dust that Plaintiffs’ experts now contend were the cause of their alleged health issues. *See, e.g.*, NIOSH Manual of Analytical Methods, <https://www.cdc.gov/niosh/nmam>.¹²

B. Plaintiffs must prove actual exposure to potentially harmful levels of the substances at issue.

After establishing the minimum levels of exposure necessary to cause the injuries alleged, Plaintiffs must then prove that they were actually exposed to such levels. In order to meet that burden, Plaintiffs must establish the doses to which they might have been exposed, as well as the durations of their exposure. At a minimum, Plaintiffs must prove that potentially harmful levels of the constituents of fly ash that allegedly caused their injuries were present in the areas in which Plaintiffs worked. *See, e.g.*, *Knight*, 482 F.3d at 353 (general causation not established where

produces a specific ill-effect.”); *Nat'l Bank of Commerce v. Dow Chemical Co.*, 965 F. Supp. 1490, 1506 (E.D. Ark. 1996) (“[T]oxicity is a function of dose. Thus the question for causation purposes is: At what levels of exposure do what kinds of harm occur?”); *Rose v. Matrixx Initiatives, Inc.*, 2009 WL 902311, at *13 (W.D. Tenn. Mar. 31, 2009) (citation omitted) (“[T]he dose-response relationship . . . is ‘the hallmark of basic toxicology.’”).

¹² Notably, such standards were addressed in the SWSHP, and were followed by Jacobs and others in conducting air monitoring at the Kingston site.

expert relied on study that did not apply to “the type of exposure, either in terms of the chemicals involved or the length of exposure,” that allegedly caused harm); *In re TVA Ash Spill Litig.*, 805 F. Supp. 2d. at 482 (“[P]laintiffs have not shown actual exposure to the potentially *toxic constituents* in the ash or brought forth evidence that a plaintiff ingested or used the ash at the requisite level to have resulted in a personal injury or emotional distress.”).¹³

Proof that potentially toxic substances can be found in fly ash is clearly not, alone, sufficient to meet this burden. *See Pluck v. BP Oil Pipeline Co.*, 640 F.3d 671, 679 (6th Cir. 2011) (citation omitted) (“Although the Plucks contend that evidence of benzene exposure existed by virtue of its presence in their wells . . . , it is well-settled that the mere existence of a toxin in the environment is insufficient to establish causation without proof that the level of exposure could cause the plaintiff’s symptoms.”); *In re TVA Ash Spill Litig.*, 805 F. Supp. 2d. at 482 (“[T]he mere existence of a toxin in the environment is insufficient to establish causation without proof that the individual was actually exposed to the toxin and at a level sufficient to cause injury or stress.”)

C. Plaintiffs must prove the biological plausibility of their alleged exposure.

Plaintiffs must also prove that it is biologically plausible that they were exposed to harmful levels of the constituents of fly ash at issue through inhalation, contact, or some other means of exposure. The fact that ash particles may contain potentially toxic compounds does not necessarily mean that the compounds are capable of becoming bioavailable, *i.e.*, absorbed by the body. As

¹³ See also *Mitchell*, 165 F.3d at 781 (“[A] plaintiff must demonstrate . . . the plaintiff’s actual level of exposure to the defendant’s toxic substance before he or she may recover.”) (quotation omitted); *Allen v. Pa. Eng’g Corp.*, 102 F.3d 194, 199 (5th Cir. 1996) (“Scientific knowledge of the harmful level of exposure to a chemical, plus knowledge that the plaintiff was exposed to such quantities, are minimal facts necessary to sustain the plaintiffs’ burden in a toxic tort case.”); *Cowan v. Arkema, Inc.*, 2007 WL 3203249, at *2 (E.D. Mich., 2007) (affirming judgment where Plaintiffs’ experts failed to ascertain level of exposure.).

noted in the Tennessee Department of Health (“TDH”) Public Health Assessment (“PHA”),¹⁴ “the metals are bound to the ash.” [See Doc. 237-10, **Ex. J-1**, PHA, at 20.] And fly ash particles are “stable under most conditions.” [See Doc. 237-13, TVA Class “F” Fly Ash, Material Safety Data Sheet.] As a result, the health hazard potential of the ash particles is equivalent to that of other common dust particles. [See *id.*] The TDH, for instance, has stated that the toxicological properties of fly ash indicate it can be considered a “nuisance” dust. [Doc. 237-10, at 43.] The PHA further notes that fly ash is not more likely to cause pulmonary issues than other ambient particulates. [*Id.*]

Because Plaintiffs allege that they were harmed by exposure to the potentially toxic constituents bound up in fly ash, they must explain how their exposure to fly ash equates to an exposure to those constituents. *In re TVA Ash Spill Litig.*, 805 F. Supp. 2d at 482. In order to make that showing, Plaintiffs must use a scientifically defensible methodology to show “a complete exposure pathway linking a chemical source(s) to the human receptor” [Doc. 237-07, Phillips Dec., Report, at 7.] In other words, Plaintiffs must show not only that the fly ash was inhaled, but that the potentially toxic constituents became unbound from or “dissolved” from the ash particles, and that the body could have actually absorbed those constituents. [*Id.* at 8, 12.]

¹⁴ Following the December 22, 2008 ash spill, the TDH, working pursuant to a cooperative agreement with the Agency for Toxic Substances and Disease Registry, performed a Public Health Assessment. After reviews by EPA and TDEC, three peer reviews, and a public comment period, the 317-page PHA was issued on September 7, 2010. *See Ex. J.*

ARGUMENT

PARTIAL SUMMARY JUDGMENT SHOULD BE GRANTED IN FAVOR OF JACOBS BECAUSE PLAINTIFFS' EXPERT PROOF DOES NOT ESTABLISH GENERAL CAUSATION.

Even if the opinions of Plaintiffs' experts are taken at face value, it is apparent that Plaintiffs cannot prove general causation, because their experts have not even attempted to establish the basic facts necessary to prove a causation link between Plaintiffs' alleged exposure to the potentially harmful constituents of fly ash and their alleged injuries.

A. Plaintiffs have not established the levels or doses at which any constituent of fly ash can cause any of the types of illnesses alleged.

Like the plaintiffs in *In re TVA Ash Spill Litig.*, Plaintiffs "have not set forth a minimum level of exposure for personal injury . . . , let alone that a certain plaintiff ingested or used enough of the ash to make a claim viable." 805 F. Supp. 2d at 482. Indeed, Plaintiffs' experts have not made any attempt to establish the levels at which exposure to any of the potentially harmful substances at issue can cause any of the health problems alleged. *See Ex. G, Phillips Dec., Report, at 21.* Plaintiffs' experts have not made any independent effort to address this issue, and their reports do not contain any discussion of the many scientific studies and articles, or the standards adopted by OSHA, NIOSH, ACGIH, or other entities, that address the levels at which these substances can cause harm. In short, Plaintiffs' experts skipped the first step required to prove that Plaintiffs' exposure to fly ash at Kingston could have caused the injuries they allege.

B. Having made no attempt to address the dosage of their alleged exposure, Plaintiffs cannot prove actual exposure to potentially harmful levels of any substance.

Plaintiffs' experts do not make any attempt to quantify the levels of Plaintiffs' alleged exposure to any constituent of fly ash. The word "dose" is entirely absent from the reports. [See generally Doc. 237-01 through 237-06, Ex. A, B, C, D, E, F; *see also* Doc. 237-07, Ex. G, Phillips

Dec., Report, at 7.] None of Plaintiffs' experts have addressed the amount, concentration, or duration of any dose. [*Id.*] Moreover, they have failed to identify any proof suggesting that potentially toxic levels of any substance were ever present in the areas where Plaintiffs worked. Plaintiffs have not presented any proof that the levels of any constituent of fly ash, including respirable dust, ever exceeded safe levels in areas where Plaintiffs were present, according to any scientific standard. In short, there is no proof that Plaintiffs were actually exposed to potentially toxic levels of any substance, let alone that Plaintiffs were exposed to levels that could have caused the particular types of health issues alleged. *See Pluck*, 640 F.3d at 679-80.

Recognizing their inability to establish that they were exposed to toxic levels of any substance, Plaintiffs all but abandoned that contention in responding to Jacobs' prior summary judgment motion and, instead, tried to travel under the theory that their exposure to particulates smaller than 3 microns in size caused their injuries. [See Doc. 205-06, at 4.] However, Plaintiffs' proof on that theory suffers from the same deficiencies, namely, that Plaintiffs' experts have not even attempted to establish: (1) the minimum levels exposure to such particulates necessary to cause the types of injuries alleged; or (2) that Plaintiffs were exposed to such minimum levels.¹⁵

C. Plaintiffs have failed to prove that their claims are biologically plausible.

Plaintiffs have failed to prove that it is biologically plausible that they were exposed to potentially harmful levels of any constituent of fly ash. Plaintiffs' experts have not even provided a hypothesis as to how Plaintiffs might have been exposed to the constituents of fly ash (as opposed to fly ash, generally), thereby causing their injuries. [Doc. 237-07, Phillips Dec., Report, at 13 ("The availability of metals in the [fly ash] is another key factor ignored by Plaintiffs' and their

¹⁵ Mr. Hudgens has offered opinions regarding the size distribution of particulates, and has generally opined that exposure to particulates of a certain size can be harmful. [See Doc. 205-07, at 1-2.] However, none of Plaintiffs' experts has offered any opinion regarding the volume of such particulates that would be necessary to cause any particular health problem.

experts.”).] The only expert who even refers to this issue, Dr. Terry, states in conclusory fashion that it is biologically plausible that the Plaintiffs’ health issues were caused by exposure to fly ash. [Doc. 205-06, at 2.] However, in addition to the fact that his conclusion is based entirely upon the “anticipate[d]” results of his incomplete study, Dr. Terry does not explain how the constituents of fly ash could have caused the harm alleged. [See *id.*] In particular, he does not explain how such constituents were capable of becoming unbound from the ash, thereby becoming bioavailable. [See *id.*] In short, Dr. Terry improperly assumes biological plausibility. *See In re TVA Ash Spill Litig.*, 805 F. Supp. 2d at 482; [Doc. 237-07, Phillips Dec., Report, at 8, 12, 13.]

In sum, there is no proof that Plaintiffs were exposed to toxic or otherwise harmful levels of any substance, let alone that the levels and duration of that exposure could have caused the types of illnesses alleged. Plaintiffs’ experts have not attempted to establish the levels at which any of the substances at issue become harmful, and have not made any effort to quantify the dose of Plaintiffs’ exposure to any substance. There is no proof that toxic levels of any substance were present in the areas where Plaintiffs worked. And Plaintiffs’ experts have not made any attempt to prove the biological plausibility their claims.

Notably, Plaintiffs have effectively conceded their inability to address these critical issues. After reviewing Jacobs’ prior summary judgment motion, Plaintiffs requested leave to disclose additional experts because they determined that their expert proof was not sufficient to establish general causation if “general proof of exposure” was required. [See Doc. 233, at 4, 10.]¹⁶ Because

¹⁶ In requesting leave to disclose additional experts, Plaintiffs stated that as a result of discussions with their experts and their review of Jacobs’ summary judgment motion, they determined that they needed additional expert proof “to ensure that they meet the Court’s expectations for proof of ‘general causation.’” [Id. at 4, 9. (noting that “[i]t has become even clearer that the parties have a substantial disagreement on the proof that is necessary for Phase I....”)]. In particular, Plaintiffs stated that they would need additional experts to prove general causation if “the court determines that general proof of exposure is necessary” [Id. at 9-10.]

such proof is clearly required, *see supra* at 12-18, summary judgment should be granted in favor of Jacobs as to general causation.

CONCLUSION

For all of these reasons, Jacobs respectfully requests that the Court grant summary judgment in favor of Jacobs as to the issue of general causation.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that on this the 20th day of March, 2018, I have electronically filed the foregoing document with the Clerk of the Court using the CM/ECF system. Notice of this filing will be sent to all parties and counsel of record by operation of the Court's CM/ECF system. All other parties will be served by regular U.S. Mail. Parties may access this filing through the Court's electronic filing system.

/s/ James F. Sanders